Claims

1. A solenoid plunger system (4, 4′) for an electropneumatic pressure transducer (1, 1′), comprising at least partly – in a casing (42, 42′, 43, 43′, 44, 44′, 47, 47′, 50, 50′) which focuses magnetic field lines M, in particular in the form of an iron casing – a solenoid plunger (45, 45′) and a core (48, 48′), in particular in the form of an iron core or magnetic core,
wherein the solenoid plunger (45, 45') comprises at least one recess (45a, 45'a) on the side facing towards the core (48, 48'), and/or the core (48, 48') comprises at least one recess (48a, 48'a) on the side facing towards the solenoid plunger (45, 45'), and an air gap (49, 49') is provided between the solenoid plunger (45, 45') and the core (48, 48'), wherein the air gap (49, 49') is adjustable by relative movement between the solenoid plunger (45, 45') and the core (48, 48'), during which relative movement the solenoid plunger (45, 45') can, at least partly, be moved into/out of the first recess (48a, 48'a) in the core (48, 48'), and/or the core (48, 48') can be moved, at least partly, into/out of the recess (45a, 45'a) in the solenoid plunger (45, 45'), and
the casing (42, 42′, 43, 43′, 44, 44′, 47, 47′, 50, 50′) comprises at least a first shell (42, 42') and a yoke (50, 50'), each of high magnetic permeability, wherein the first shell (42, 42') is arranged between the solenoid plunger (45, 45') and at least one coil (41, 41') and/or at least one magnet, and the air gap (49, 49') is arranged in a region between the first shell (42, 42') and the yoke (50, 50'),
characterised in that
the casing (42, 42′, 43, 43′, 44, 44′, 47, 47′, 50, 50′) comprises a second shell (47, 47') of high magnetic permeability between the first shell (42, 42') and the yoke (50, 50'), wherein said second shell (47, 47') comprises at least one recess (47a, 47'a), in particular in the shape of an annular groove, on its side facing away from the core (48, 48'), for focusing magnetic field lines M from the yoke (50, 50') onto the core (48, 48'), and in that in the region of the recess (47a, 47'a) of said second shell (47, 47'), the yoke and/or an adjustment member (51, 51'), in particular in the form of an adjustment ring, of high magnetic permeability is/are moveable relative to said second shell (47, 47'), for adjusting the magnetically effective length l of the recess (47a, 47'a) of the second shell (47, 47').

2. The solenoid plunger system according to claim 1, characterised in that
the air gap (49, 49′) is arranged in a region between the first shell (42, 42′) and the second

shell (47, 47′).

3. The solenoid plunger system according to claim 1 or 2, characterised in that
a spacer (46, 46′) of low magnetic permeability is arranged between the first shell (42, 42′) and the second shell (47, 47′).

4. The solenoid plunger system according to any one of the preceding claims, characterised in that
the core (48, 48′) comprises at least one second recess (48b, 48′b) on the side facing away from the solenoid plunger (45, 45′), and/or the adjustment member (51, 51′) comprises at least one first recess (51a, 51′a) on the side facing towards the core (48, 48′),
wherein the magnetically effective length l of the recess (47a, 47′a) of the second shell (47, 47′), for targeted focusing of the magnetic field lines M, is adjustable by relative movement between the core (48, 48′) and the adjustment member (51, 51′), during which relative movement the core (48, 48′) can, at least partly, be moved into/out of the first recess (51a, 51′a) in the adjustment member (51, 51′), and/or the adjustment member (51, 51′) can be moved, at least partly, into/out of the second recess (48b, 48′b) in the core (48, 48′).

5. The solenoid plunger system according to any one of the preceding claims, characterised in that
the core (48, 48′) comprises at least a third recess (48c, 48′c), at its end facing away from the solenoid plunger (45, 45′), for the engagement of a tool for adjusting its position, and/or
the adjustment member (51, 51′) comprises at least a second recess (51b, 51′b), on the side facing away from the core (48, 48′), for the engagement of a tool for adjusting its position.

6. The solenoid plunger system according to any one of the preceding claims, characterised in that
the casing (42, 42′, 43, 43′, 44, 44′, 47, 47′, 50, 50′) comprises a holding device (43, 43′), preferably of high magnetic permeability, for the coil (41, 41′) or the magnet, and at least one plain bearing (44, 44′), preferably of high magnetic permeability,
wherein preferably the plain bearing (44, 44′) for the solenoid plunger (45, 45′) is arranged between the solenoid plunger (45, 45′) and the first shell (42, 42′).

7. The solenoid plunger system according to any one of the preceding claims, characterised in that
the core (48, 48′) and/or the adjustment member (51, 51′) are/is moveable relative to the second shell (47, 47′) by way of a screw thread.

8. The solenoid plunger system according to any one of the preceding claims, characterised by
a first attenuator in the first recess of the solenoid plunger, and/or a second attenuator in the first recess of the core, and/or a third attenuator in the second recess of the core, and/or a fourth attenuator in the first recess of the adjustment member, wherein preferably the first, second, third and/or fourth attenuator are/is made from an elastomer.

9. The solenoid plunger system according to any one of the preceding claims, characterised in that
the recess in the solenoid plunger, the first and/or second recess (48'b) of the iron core (48'), and/or the adjustment ring (51') on the side facing towards the iron core (48') are/is bevelled off so as to increase the adjustment range(s).